

International competencies development in a virtual exchange for future veterinarians

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Abstract

Over the past years, internationalization has become the gold standard for most higher education institutions and strategies for internationalization at home have grown as a means to foster global learning. Virtual exchange (VE) as an internationalization at home strategy encompasses one of the most innovative teaching methodologies to provide students with an intercultural perspective in the subject area of their academic programs. A total of 158 veterinary students from a private university in Spain and a public university in Brazil participated in a COIL project based on veterinary anatomy and diagnostic imaging. The project's primary objective was for students to leverage their diverse knowledge and backgrounds to collaboratively discuss a clinical case and create a scientific poster in small groups. This practice report aims to demonstrate the potential of VE in veterinary sciences by detailing the collaboration design and presenting students' perspectives on their experiences. The results of a post-collaboration survey indicate that this methodology effectively stimulates students to engage globally and fosters their personal and professional development.

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1. Introduction

Technological resources for synchronous and asynchronous communication over the internet have transformed the affordances for human interactions and enabled the exchange of information at an unprecedented speed. These technologies make it possible to shorten geographical distances, enabling communication between people from different countries, cultures, and languages. Within universities, the use of digital information and communication technologies has contributed to expanding the possibilities for the internationalization of higher education institutions through virtual exchanges.

O'Dowd (2018) characterizes virtual exchange (VE) as the engagement and collaboration between groups of students from different cultural backgrounds and/or geographic locations for a given period, as part of the program of a discipline and mediated by a teacher and/or facilitator. Employing regular online interactions, this type of initiative promotes collaborative learning and the exchange of ideas between students from different educational institutions in any area of knowledge, promoting global and intercultural skills.

The partnership described in this practice report was developed in the area of veterinary medicine and animal sciences between a public university in São Paulo state in Brazil and a private university at Valencia in Spain. During the second semester of 2021, students from both institutions worked in groups of six to seven students to develop a project focused on anatomy applied to diagnostic imaging based on a COIL class-to-class format.

By focusing on the potential of international collaboration in preparing future professionals and supporting education in an increasingly diverse world, this experience aimed at addressing the urgent need for veterinary students to interact with other students from different contexts, whose attitudes, beliefs, values, and behaviors differ from theirs. An understanding of and respect for these differences are crucial in communication and healthcare outcomes (Lipman et al., 2003; De Rosa & Balogh, 2005; Mills et al., 2011; Koch et al., 2012).

2. Context

Two universities participated in the collaboration. A public university from the southeast of Brazil and a private university from the eastern coast of Spain. The former is attended mostly by Brazilian students, while the latter has the characteristic of having more than a third of the students from abroad. The Brazilian university has an institutional virtual exchange program, named BRaVE (Brazilian Virtual Exchange), which aims to promote coordinated actions to incentivize this modality of teaching for increasing students' access to internationalization (Salomão & Freire Jr., 2020; Salomão, 2022). The Spanish university follows the COIL model aiming to promote experiential learning, reinforce teamwork, enhance intercultural skills, and develop language skills.

The group in Brazil was formed by 47 students and their professor of veterinary diagnostic imaging, a course usually taught in the third year of veterinary studies, and the group in Spain was formed by two professors, one of anatomy and small animal surgery, and the other of diagnostic imaging, with a total of 111 students, mostly from the first and second years of study.

All the students on the Brazil side had Portuguese as their first language, while the students from the Spanish institution had many different languages as their first language, such as French, Italian, Spanish, Finnish, and English. English was then the language chosen by the professors as the main language for communication during the synchronous sessions and the transmission of guidelines and instructions for the activities.

Concerning proficiency in English, both groups were very heterogeneous, ranging from basic to advanced skill levels. Before the first synchronous session, the professors were advised by the VE program coordinator to organize the groups in a way that each group would always have a member that was considered to have a higher proficiency in English.

For the development of the main activity, groups of six to seven students were formed, with a general ratio of four students from the Spanish institution and two students from the Brazilian institution. A technical assistant from the Brazilian institution provided support for the use of Google Meet for the synchronous sessions and Padlet – an online tool for virtual notice boards – for the asynchronous activities.

3. Objectives

The objective of this collaboration was related to the possibility of giving students an intercultural experience while studying the contents related to their university program. One of the main goals was to promote internationalization at home and cultural exchange between our students and have them discuss a veterinary clinical case based on a radiographic study, showing the most significant findings and diagnosis with the development of a scientific poster.

The specific goals connected to the collaboration were:

- Preparing students to get in touch with other realities and broaden their horizons by communicating and working with students from other countries.
- Enhancing skills for multicultural and international workplaces.
- Providing students with a different opportunity to work together, combining regular education and international cooperation.
- Exploring cultural awareness and sensitivity within the curriculum, which can build the intercultural confidence necessary to provide culturally sensitive care to clients.

[O'Dowd and Ware \(2009\)](#) discuss the elaboration and application of tasks in telecollaborative activities, specifically considering cases in which a partnership is made between two groups of learners of different languages. The authors point to the importance of task-based learning and emphasize that the VE offers a new perspective on this topic since it is constituted as essentially different from the traditional classroom. In the case described here, the focus was to allow veterinary students to promote their scientific spirit, creativity, and teamwork capacity in an online intercultural context.

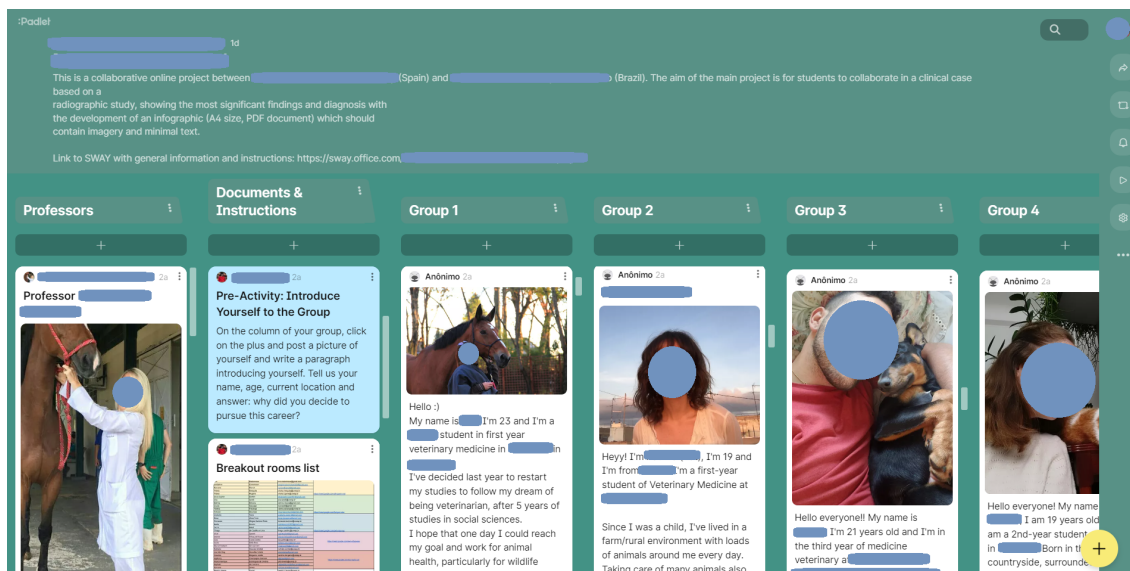
The objectives for the collaboration were established and communicated to students before and reinforced during their first synchronous Zoom meeting. These learning objectives are closely aligned with the development of strong intercultural competencies and the promotion of cognitive, intercultural, and affective learning. By placing students in small, multidisciplinary, and multinational groups, it was expected that students would develop communicative abilities, social and language skills, increased confidence, and learning motivation.

4. Project design

A total of 158 veterinary students from both universities participated in a VE project based on veterinary anatomy and diagnostic imaging. Three professors of the veterinary schools (two from the Spanish university and one from the Brazilian university) collaborated to design and implement a four-week VE program that took place during the fall 2021 semester. Twenty-six groups containing six to seven students per group were formed out of 47 third-year students from the Brazilian university, enrolled in a diagnostic imaging course and 111 students from the Spanish university (98% students being international from a wide variety of nationalities) enrolled in first- and second-year anatomy and diagnostic imaging subjects. The project design took into account the fact that the students had different knowledge as they were from different years and the fact that their courses were complementary (diagnostic imaging and anatomy), so their different experiences could be used collaboratively to complete the main task.

O'Dowd and Ware (2009) divide the types of tasks, according to the communicative activity they evoke, into three main categories: (1) exchange of information, (2) comparison and analysis, and (3) collaborative. The first type of assignment refers to those in which students share information about themselves and/or their community. The second type focuses on the comparison and/or critical analysis of products from the two cultures to establish differences and similarities between them. Collaborative tasks require learners to work together to produce a conclusion or product. The authors state that this last type of task enhances the opportunities for negotiation of meaning at the linguistic and cultural levels, since the participants need to establish agreements for the delivery of the final product.

Padlet was used as the online platform where instructions, files, and students' work were posted (Figure 1). The first activity was an ice-breaker designed by the authors to help students meet their partners before the first synchronous session and have an idea of the composition of the whole group, which was a large one. It concerned the exchange of information and a possible comparison of their professional contexts. In this sense, students were requested to use the platform to post a picture, introduce themselves and answer a specific question based on their reasons for studying veterinary medicine.

Figure 1. Online platform used to develop the collaboration

Because the students had different nationalities and backgrounds, this was a chance for them to explore the myriad of possibilities and perspectives of their profession in diverse contexts. The icebreaker was followed by a synchronous meeting via Google Meets where the VE project was presented by the professors, and detailed information including the links to access the different online platforms used throughout the project was provided. In addition, during this first synchronous meeting, students were organized into breakout rooms and had the opportunity to get to know each other virtually through an icebreaker activity: each group was asked to share one true and one false fact about Brazil and Spain, to stimulate a discussion.

For the main task, a collaborative one, each group was provided with a real clinical case based on a radiographic study and asked to design an original scientific poster which should include the following sections:

Table 1. Instructions for designing the scientific poster

TITLE	Should include the diagnosis.
AUTHORS	Presenting authors, co-authors, and affiliations.
CASE REPORT	Clinical history of the animal.
ANATOMY REVIEW	Students should include a picture/diagram designed on their own showing the main anatomic structures involved in the radiograph.
RADIOGRAPHIC ANATOMY	The most representative radiograph should be included in the template with labels to identify anatomic structures involved in the radiograph with regards to the diagnosis should be included.
RADIOGRAPHY FINDINGS	Identification of the pathologic findings which help in the diagnosis.
DIFFERENTIAL DIAGNOSIS	Based on radiographic findings, some differential diagnoses should be highlighted.
DIAGNOSIS	Final diagnosis.
DISCUSSION	Searching for scientific articles to highlight the importance of the clinical case.

All teams discussed similarities and differences in each of the aspects above from their distinct sociocultural perspectives, followed by the preparation of a joint scientific poster. A template for the preparation of the poster was provided for the students. The professors agreed on the publication of the posters in an e-book after the collaboration.

Students were requested to communicate weekly with the members of the group and show this information on Padlet. Once scientific posters were finished by each of the 26 groups of students, they were uploaded to the platform and evaluated by both professors and students using a rubric designed by the authors (Figure 2). After their evaluations, students had to choose the three best projects.

Figure 2. Rubric used for scientific poster evaluation

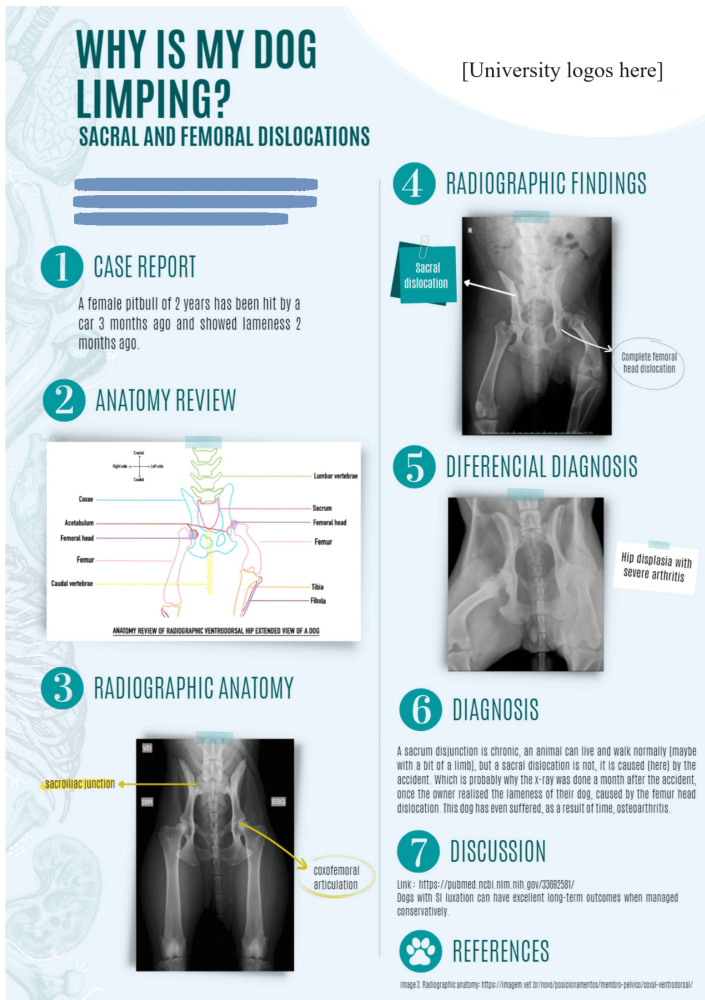
Identification number: _____

CRITERIA	Incorrect (0-4 points)	Correct (5-6 points)	Good (7-8 points)	Excellent (9-10 points)	Score
Writing	Incorrect writing	Correct writing	Good writing. Well structured. Clear sentences	Excellent writing. Rich vocabulary. Very well structured	
Description of the case report (anatomical record, radiographic findings and diagnosis)	Inadequate or not present	Enough to understand the purpose of the work	Well defined and detailed	Clear, concise, attractive, original and coherent	
Discussion and conclusions	Do not correspond to presented clinical case	Fair, basic	Clear. In relation to the presented clinical case	Clear, original. Highlights more important results	
Bibliography	Do not follow an appropriate formatting	Acceptable formatting with minimal errors	Acceptable formatting	Acceptable formatting, and updated	
Case report design: graphs/ Tables/Figures	None or inappropriate visual support	Appropriate visual support. Basic structure	Appropriate visual support, interesting	Very relevant visual support and original, attractive	
TOTAL SCORE (0-10)					

A second synchronous session was carried out by the end of the project through Google Meets. During this meeting, the six groups with higher marks were asked to present orally their scientific posters, which were then discussed with the rest of the students by the professors.

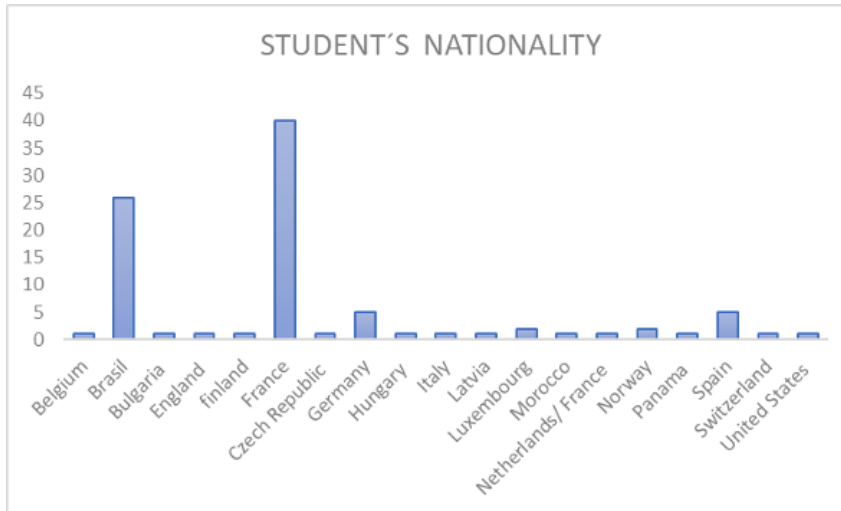
Figure 3 below shows one of the posters as an illustration of the results of students' collaborative work in the VE.

Figure 3. Example of a poster produced by one of the groups



5. Evaluation

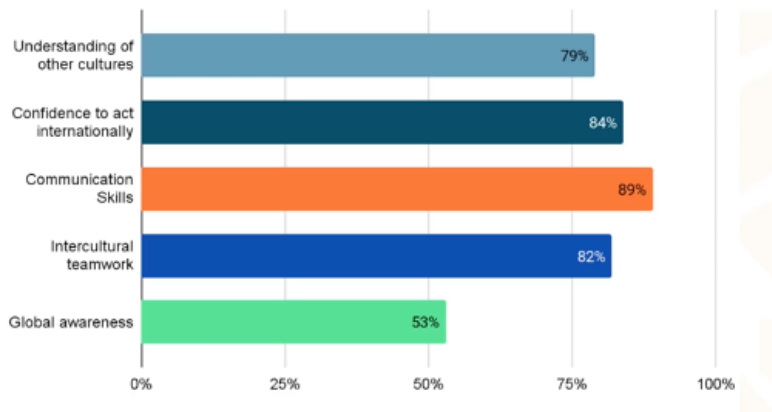
This VE experience was evaluated through a voluntary and anonymous survey answered by 90 of the participant students from 19 different nationalities (Figure 4).

Figure 4. Nationalities of participant students (self-assigned)

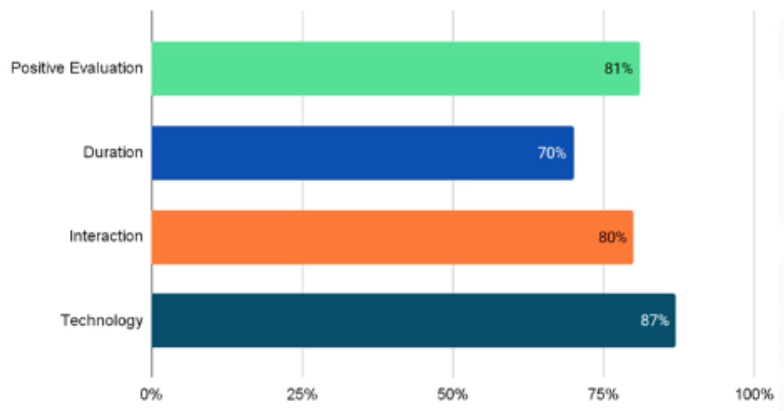
With regards to developed skills acquired by students, 79% expanded their understanding of other cultures, 84% improved their confidence to act in an international context, 89% enhanced their communication skills, 82% managed to work efficiently in intercultural teamwork and 53% raised their global awareness. Global satisfaction was evaluated positively by 81% of the students, 70% considered acceptable the duration of the experience, 80% felt happy with the interaction between students and professors and 87% considered the technology used in this VE was good. In addition, 83% of the students would accept to get involved in further international and intercultural experiences in the future. The net promoter score (NPS) results show that our students highly recommend other students to participate in further similar international experiences (NPS 11) (Figure 5).

Figure 5. Satisfaction degree based on the acquired abilities and global satisfaction of the experience

Developed Skills



Global Satisfaction



By the end of the last synchronous session, students were asked to answer the following two simple questions using Mentimeter, “What have you learned from this experience?” and “What challenges did you have to overcome?” Figures 6 and 7 show the results of their answers to each question in a word cloud format.

Figure 6. Students' answers to the question "What did you learn from this experience?"



It is important to highlight that most of the words that stand out are related to intercultural skills, such as collaboration, teamwork, patience, culture, communication, and understanding. It is also important to see that words related to their field of study are mentioned, which allows us to state that they have made connections between the experience and their content area.

Figure 7. Students' answers to the question "What challenges did you have to overcome?"



Some challenges are inherent to this kind of telecollaborative work, such as time differences and language barriers. It is interesting to notice that organization, coordination, and task sharing as well as compromise are mentioned as students had to negotiate within their groups to work together on the collaborative task. We understand that such challenges are also learning opportunities for students, which are made concrete by the real experience of interacting during the VE.

6. Conclusions

Internationalization must be a continuous effort to integrate international and intercultural dimensions for higher education. As such, it should aim for the education of global citizens, who can look at their future professions from a local and global perspective and be able to work collaboratively to share and build new knowledge, with all the diversity and complexity it implies (Knight, 2004). In this regard, veterinary students should develop an appropriate and culturally sensitive curriculum in professional communication. The exchange described in this article provided undergraduate veterinary students with the opportunity to share culturally diverse knowledge in their future professional field and learn about unusual cases, emerging diseases, and treatments, which is essential for veterinary professional development. In addition, dealing with issues of cultural diversity such as language and sociocultural differences has the potential to affect communication and the ability to build trust and confidence in the veterinarian-client relationship.

The development of intercultural competence within professional programs at university needs to be actively pursued, as the workplace requires the capacity and commitment to accommodate differences and capitalize upon diversity. Each context of VE is unique, as it depends on factors such as content and learning outcomes, number of participants, digital resources available, and time and duration of activities, among others, the strategies will vary across collaborations and institutions. The VE described in this practice report shows that it is possible to work with large groups and connect intercultural learning to academic collaborative work in biological sciences through the joint elaboration of a scientific poster.

The choice to include an assessment rubric in the planning, giving students the opportunity to evaluate each others' work, proved to be an effective way of stimulating not only intragroup work but also the connection with the products generated by their peers, especially as this was a very large cohort of students.

For future editions, we recommend having fewer students per group, as this may generate stronger contact among the members. It could also be interesting to include some lessons taught together by the professors to the students at the beginning of the VE to help them experience the joint work as a whole class before delving into the collaboration with their groups.

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